



COMSCI: Forensics: The Crossroads of Science, Policy & Justice

The Current Policy Climate for Forensic Science Reform

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Vice-Chair, National Commission on Forensic Science

Standard NIST Disclaimer

Points of view are mine and do not necessarily represent the official position or policies of the US Department of Justice or the National Institute of Standards and Technology.

Certain commercial equipment, instruments and materials are identified in order to specify experimental procedures as completely as possible. In no case does such identification imply a recommendation or endorsement by the National Institute of Standards and Technology nor does it imply that any of the materials, instruments or equipment identified are necessarily the best available for the purpose.

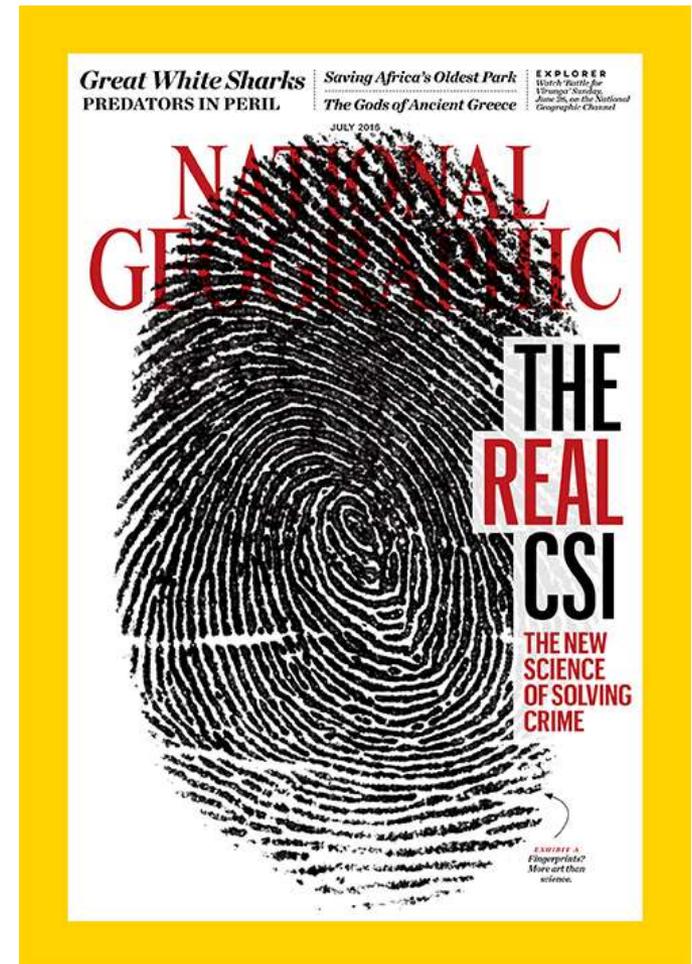
Cover Stories on Forensic Science

Science



11 March 2016
Vol. 351, Issue 6278

National Geographic



July 2016

Recent Forensic Problems in the News

FBI Lab problems with hair comparisons

(reviewing old cases from 1980s and 1990s)

After FBI admits overstating forensic hair matches, focus turns to cases

Convicts could face challenges in getting back to court.



Spencer S. Hsu | Crime | Apr 21, 2015



Benjamin N. Cardozo School of Law, Yeshiva University

THE FBI HAIR REVIEW: A Call for Forensic Science Reform

FIVE DISTURBING THINGS YOU DIDN'T KNOW ABOUT FORENSIC "SCIENCE"

BY JORDAN SMITH @otronic_lander

6/26/2015



POLITICS

CONOR FRIEDERSDORF | APR 20, 2015

CSI Is a Lie

America's forensic-investigation system is overdue for sweeping reform.

The FBI's Forensics Disaster

This latest failure of criminal science again highlights the need for massive reforms at law enforcement agencies.

Roger Koppl | May 5, 2015

DC Crime Lab problems with DNA Mixture Interpretation

Director of D.C.'s embattled DNA lab resigns after suspension of testing

Max M. Houck had been the director since the lab opened in 2012. Auditors found major problems there.



Keith L. Alexander and Julie Zauzmer | Local | Apr 30, 2015

District could spend nearly \$1 million for outside lab to test DNA evidence

The District is scrambling to find an alternative after the D.C. lab was ordered to cease DNA testing.

Keith L. Alexander | Crime | Apr 29, 2015

National accreditation board suspends all DNA testing at D.C. crime lab

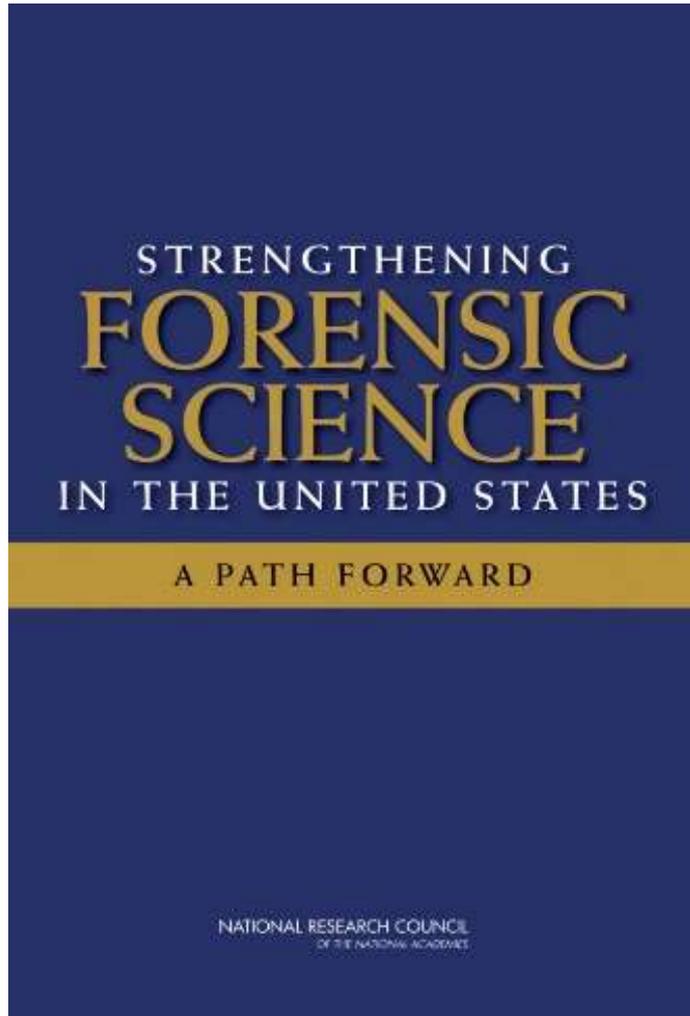
Two audits of the District lab found inadequate procedures for DNA testing and poorly trained employees.



Keith L. Alexander | Crime | Apr 28, 2015

The Washington Post

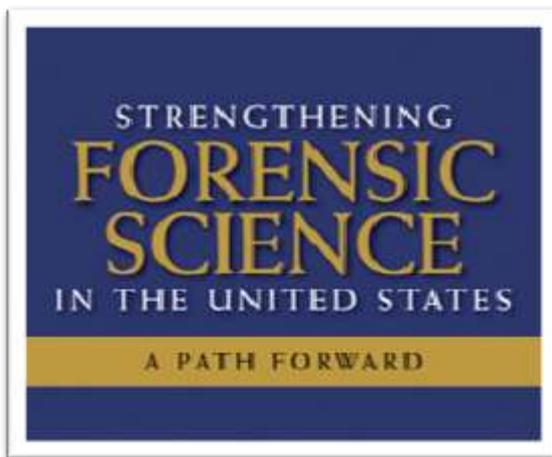
“The National Academy of Sciences” (NAS) Report on Forensic Science



In the preface (p. xx), Harry T. Edwards and Constantine Gatsonis, the committee co-chairs, write:

“The forensic science system, encompassing both research and practice, has serious **problems that can only be addressed by a national commitment to overhaul the current structure** that supports the forensic science community in this country. This **can only be done with effective leadership** at the highest levels of both federal and state governments, pursuant to national standards, **and with a significant infusion of federal funds.**”

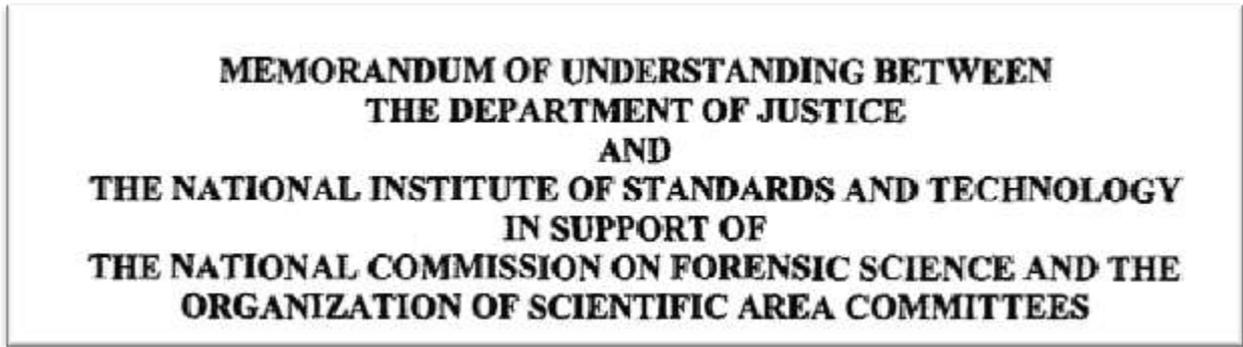
Released February 2009



2009 ...A National Research Council publication suggests the creation of a new government entity, the ***National Institute of Forensic Science***, to establish and enforce standards within the forensic science community.



2009 to 2012 - National Science and Technology Council
NIST co-chairs *Subcommittee on Forensic Science*



2013 to present
MOU between DOJ and NIST

Establishes a federal advisory committee for DOJ (NCFS) while NIST develops and administers the OSAC



President's Council of Advisors on Science and Technology (PCAST)

Executive Office of the President

<https://www.whitehouse.gov/administration/eop/ostp/pcast>

July 13, 2016 Public Meeting

*A report on Forensic
Science is being written*



ACS Public Policy Statement



Public Policy Statement
2013-2016

FORENSIC SCIENCE

Forensic science is critical to an effective justice system, which in turn is a central pillar of a civil society. It is an interdisciplinary field that includes chemistry as a prime, integral component. The American Chemical Society (ACS) therefore offers a unique and wide-ranging ability to influence and contribute to the advancement of forensic science.

Physical evidence presented in courts is frequently analyzed using forensic science techniques. The credibility of the legal system critically depends on forensic tests that are consistent and scientifically valid, witnesses who are certified and recognized as forensic experts, and laboratories that are accredited by an appropriate governing agency.

Modern forensic science faces enormous challenges. The National Academies report, *Strengthening Forensic Science in the United States: A Path Forward*, enumerates the problems of the forensic science community in great detail. The report notes that due to its history, its interdisciplinary and applied nature, and its close ties to law enforcement and the legal system, forensic science has not developed a rigorous culture. Therefore, analytical method training and validation that are hallmarks of other scientific fields are often absent in forensic science.

Why is NIST involved in forensic science?

- **Our assistance and technical expertise was requested by DOJ and others**
 - **Establishment of FBI Laboratory** (early 1930s)
 - Automated fingerprint detection (1960s to present)
 - Law Enforcement Standards Laboratory (established in 1971)
 - “Starch Wars” (1977 to 1978)
 - Input on TWGDAM/SWGDAM (1988 to present)
 - DNA reference materials (early 1990s to present)
 - FBI’s DNA Advisory Board (1995 to 2000)
 - Digital forensics (late 1990s to present)
 - National Institute of Justice (NIJ) funding (1970s to present)
 - White House Subcommittee on Forensic Science (2009-2012)
 - **MOU leading to NCFS and OSAC (2013-present)**

U.S. LABORATORY DETECTS CRIME

Expected to Be of Great
Assistance to
Officials

The Reading Times, p. 23
Friday, 12 October 1934

**FBI Laboratory
developed with
assistance and
advice of Dr.
Wilmer Souder
(National Bureau of
Standards)**

WASHINGTON, Oct. 11 (AP)—A great central laboratory for the scientific detection of crime, which the division of investigation of the department of justice, established here a few months after the Lindbergh kidnaping, is expected to be of considerable value in the solution of future abductions and other criminal cases.

The laboratory has been developed with the assistance and advice of Dr. Wilmer Souder, national bureau of standards scientist, who for 19 years has devoted the principal portion of his time to the identification of handwriting, typewriting and bullets.

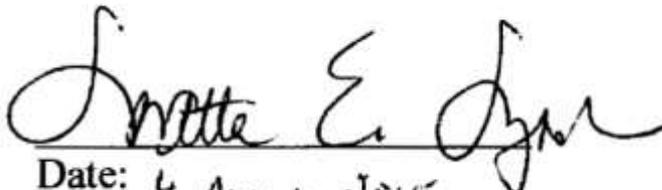
A Renewal MOU Was Recently Signed between DOJ and NIST and is publicly available on the NCFS website

<https://www.justice.gov/ncfs/file/761051/download>

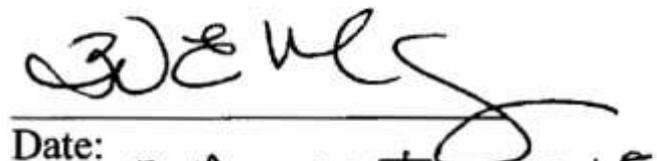
**MEMORANDUM OF UNDERSTANDING BETWEEN
THE DEPARTMENT OF JUSTICE
AND
THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
IN SUPPORT OF
THE NATIONAL COMMISSION ON FORENSIC SCIENCE AND THE
ORGANIZATION OF SCIENTIFIC AREA COMMITTEES**

X. Signatures:

For the Department of Justice:


Date: 4 August 2015

For the National Institute of Standards and Technology:


Date: 05 August 2015

NIST Forensic Science Efforts

National Commission on Forensic Science (NCFS)



Department of Justice FACA
co-led by NIST
setting policy

Organization of Scientific Area Committees (OSAC)



NIST-administered
>540 members of the community
establishing standards and best practices

NIST Funded Internal Research Programs



~\$7.5M/year
invested

NIST Forensic Science Center of Excellence



CoE: ~\$4M/year invested for
5 years (2015-2020)

International Symposium on Forensic Science Error Management



432 participants (11 countries)

Policy – Practice – Research are all inter-related

Standards of Practice for Forensic Practitioners

This diagram consists of three overlapping circles. The top circle is yellow and contains the text 'Standards of Practice for Forensic Practitioners'. The bottom-left circle is blue and contains 'Federal Policy to meet Societal Expectations'. The bottom-right circle is green and contains 'Research for new or improved methods and data analysis'. The circles overlap in various combinations, with a central area where all three intersect.

Federal **Policy** to meet Societal Expectations

Research for new or improved methods and data analysis

Organization of Scientific Area Committees (OSAC)

This diagram consists of five overlapping circles. The top circle is yellow and contains the text 'Organization of Scientific Area Committees (OSAC)'. The bottom-left circle is blue and contains 'National Commission on Forensic Science (NCFS)'. The bottom-right area contains three overlapping circles: a light green circle labeled 'NIST', a dark blue circle labeled 'NIJ', and a bright green circle labeled 'NSF'. The circles overlap in various combinations, with a central area where all five intersect.

National Commission on Forensic Science (NCFS)

NIST

NIJ

NSF

National Commission on Forensic Science

A Federal Advisory Committee
for the U.S. Department of Justice



U.S. Department of Commerce

<http://www.justice.gov/ncfs>

NCFS Co-Chairs and OSTP Director address the first Commission meeting

NIST Director
Pat Gallagher

Deputy Attorney General
James Cole

OSTP Director
John Holdren



National Commission on Forensic Science (NCFS)

www.justice.gov/ncfs

Policy-focused

NCFS Leadership

In 2013, the Department of Justice (DOJ) established the National Commission on Forensic Science, in partnership with the National Institute of Standards and Technology (NIST), to enhance the practice and improve the reliability of forensic science. This unique partnership draws upon each agency's core strengths to promote scientific validity, reduce fragmentation, and improve federal coordination of forensic science.

The Commission is co-chaired by Deputy Attorney General James M. Cole and NIST Acting Director and Acting Under Secretary of Commerce for Standards and Technology, Willie May. Nelson Santos, Deputy Assistant Administrator for the Office of Forensic Sciences at the Drug Enforcement Administration, and John M. Butler, Special Assistant to the NIST Director for forensic science, serve as vice-chairs. Brette Steele, Senior Advisor on Forensic Science and Senior Counsel to the Deputy Attorney General serves as the Designated Federal Officer and Robin Jones, Consultant within the Department of Justice, serves as Program Manager.

The Commission includes federal, state and local forensic science service providers; research scientists and academics; law enforcement officials; prosecutors, defense attorneys and judges; and other stakeholders from across the country.

GENERAL INFORMATION
NATIONAL COMMISSION ON FORENSIC SCIENCE

CONTACT

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By Phone:
(202) 305-0180

32 voting and 8 *ex-officio* members

Last meeting (9th): June 20-21, 2016

Next meeting (10th): Sept 12-13, 2016



Sally Q. Yates
Deputy Attorney General
DOJ Co-Chair



Willie E. May
Director of NIST
NIST Co-Chair



Nelson A. Santos
Vice-Chair (DOJ)



John M. Butler
Vice-Chair (NIST)

Commission Activities

(operates on 2-year renewal terms)

- Announcement at AAFS 2013 meeting on February 21, 2013
- Commission charter originally filed on April 23, 2013; renewed on April 23, 2015
- Commission membership announced on January 10, 2014
- Meetings held thus far:

- **Meeting 1** February 3 – 4, 2014
- **Meeting 2** May 12 – 13, 2014
- **Meeting 3** August 26 – 27, 2014
- **Meeting 4** October 28 – 29, 2014
- **Meeting 5** January 29 – 30, 2015

Term 1

- **Meeting 6** April 30 – May 1, 2015
- **Meeting 7** August 10 – 11, 2015
- **Meeting 8** December 7 – 8, 2015
- **Meeting 9** March 21 – 22, 2016
- **Meeting 10** June 20 – 21, 2016

Term 2

- Future meetings planned:
 - **Meeting 11** September 12 – 13, 2016
 - **Meeting 12** January 9 – 10, 2017
 - **Meeting 13** April 10 – 11, 2017

**Future Terms are
contingent on DOJ
renewal; NCFS Term 2
expires April 23, 2017**

NCFS Meeting Materials Available

<http://www.justice.gov/ncfs/meeting-materials.html>

Meeting Summaries

pdf document

National Commission on Forensic Science

Meeting Summary

May 12-13, 2014

Office of Justice Programs
810 7th Street NW, Washington, DC

Speaker Slides (pdf files)

2nd National Commission on Forensic Science Webcast

National Commission on Forensic Science Meeting...



Webcast
(>9 hours of
archived video)

MEETING TWO

References

Listing of 22 references provided to Commissioners

Human Factors and Cognitive Bias in Forensic Science

Deborah Boehm-Davis, Dean, College of Humanities and Social Sciences and University Professor, Department of Psychology, George Mason University

John Collins, President, Forensic Foundations Group

The Need for Sequential Unmasking

Michael Risinger, John J. Gibbons Professor of Law, Seton Hall University School of Law

David H. Kaye

Distinguished Professor of Law and Weiss Family Faculty Scholar, Penn State University, Dickinson School of Law



NCFS Contacts



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Commission Work Products

- The Commission is a Department of Justice Federal Advisory Committee and therefore **only has direct authority to make recommendations to the Attorney General.**

DOJ has promised to respond to NCFS work products within two meetings

- It is hoped that Commission work products will be considered and adopted by other Federal agencies and within state and local jurisdictions.

Voting is conducted electronically with a **two-thirds majority required to pass**



NCFS Work Products Adopted by the Commission Page

The screenshot shows the Department of Justice website header with the seal and text "THE UNITED STATES DEPARTMENT of JUSTICE". Navigation links include "en ESPAÑOL" and social media icons. A breadcrumb trail reads "Home » National Commission on Forensic Science » Work Products". A left sidebar lists navigation options: "National Commission on Forensic Science Home", "Members", "Meetings", "Work Products" (with "Work Products Adopted by the Commission" circled in red), "Draft Work Products Open for Public Comment", "Operational Documents", "Subcommittees", "Press Room", and "Contact the Commission". The main content area features a black header "WORK PRODUCTS ADOPTED BY THE COMMISSION" and a yellow call-to-action "Sign up for Email Updates" with a red arrow pointing to an "Email updates" link. Below this are sections for "ACCREDITATION AND PROFICIENCY TESTING" and "INTERIM SOLUTIONS", each listing adopted recommendations with their respective meeting dates.

<http://www.justice.gov/ncfs/work-products-adopted-commission>

We Encourage Public Comments

- Individuals wishing to submit written public comment regarding draft work products should do so by going to www.regulations.gov
- Work products are made available to Commissioners and to the general public at least 15 days before the next meeting and public comments can also be provided 15 days after a meeting (30 days total)



Initial DRAFT Views Document on Testimony Using the Term Scientific Certainty

Other by DOJ on 04/15/2015

ID: DOJ-LA-2015-0004-0008

[Comment Now!](#)

Due May 15, 2015 11:59 PM ET

[Open Docket Folder](#)

EVIDENCE TECHNOLOGY MAGAZINE

The magazine dedicated exclusively to the technology of evidence collection, processing, and preservation
Volume 14, Number 2 • Summer 2016



Forensic Science News
from the
National Institute of
Standards and Technology

Recent Activities of the National Commission on Forensic Science

Written by John M. Butler

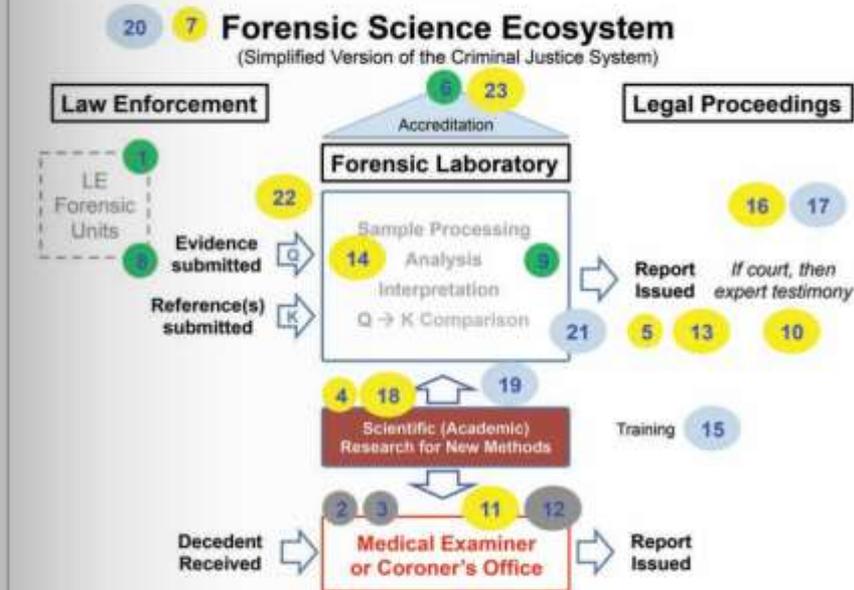
IN FEBRUARY 2013, the U.S. Department of Justice (DOJ) and the National Institute of Standards and Technology (NIST) announced a partnership that included formation of the National Commission on Forensic Science (NCFS) and what is now the Organization of Scientific Area Committees (OSAC). As a Federal Advisory Committee for DOJ, NCFS involves public meetings, public input on draft documents, and an open website sharing meeting materials and final documents. Video recordings of past meetings are available as well. Co-chaired by Deputy Attorney General Sally Yates and NIST Director Willie May, the Commission meets four times a year and involves energetic discussions on a variety of issues.

The accompanying figure is an attempt to show where the 23 NCFS documents thus far approved impact what can be termed the "forensic science ecosystem", which involves law enforcement, forensic laboratories, scientific (academic) research, medical examiner or coroner's offices, and the legal system. For example, NCFS work product #20 is a recommendation regarding a National Code of Professional Responsibility for Forensic Science and Forensic Medicine Service Providers, which received approval at the March 2016 meeting. The number 20 is shaded in light blue because this recommendation is currently under consideration by DOJ.

At the June 20-21, 2016 NCFS meeting, final drafts for seven work products may be introduced for a vote and approval by the Commission. These documents include recommendations regarding pretrial discovery, a request for NIST to perform developmental validation studies, accreditation of digital and multimedia forensic science service providers, and formation of a national disaster call center. Views documents under consideration cover judicial vouching of experts, notice and demand provisions, and validation of forensic science methodology.

The Commission's vision is for all forensic evidence to support the equal and impartial application of justice. The NCFS efforts can be framed into three primary goals: (1) foundational—

NIST CORNER



First 23 NCFS Adopted Work Products

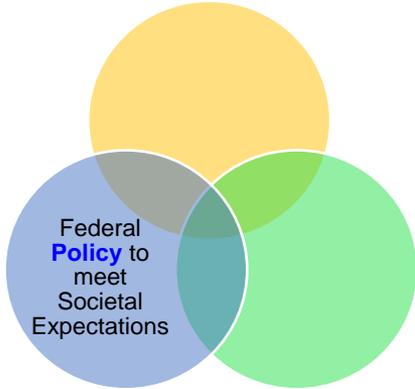
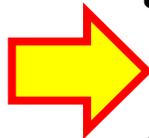
Note: The recommendations in green below and in green on the figure have been responded to by DOJ. Other recommendations are being considered (blue) or are outside the purview of DOJ (gray). Views of the Commission are in yellow. Q = questioned sample; K = known sample

Some Key NCFS Recommendations

Complete set of **30 work products** available at
<https://www.justice.gov/ncfs/work-products-adopted-commission>

Work Products are Developed in **Subcommittees:**

- **Accreditation and Proficiency Testing**
 - Universal Accreditation
- **Interim Solutions**
 - Transparency of Quality Management System Documents
 - National Code of Professional Responsibility
- **Scientific Inquiry and Research**
 - Technical Merit Evaluation of FS Methods & Practice (Views)
- **Medicolegal Death Investigation**
 - National Disaster Call Center
- **Reporting and Testimony**
 - Use of the Term “Reasonable Scientific Certainty”
- **Training on Science and Law**
 - Forensic Science Curriculum Development



Recommendations to the Attorney General Regarding **Use of the Term “Reasonable Scientific Certainty”** (NCFS Approved 3/22/16)

- **Recommendation #1:** The Attorney General should direct all attorneys appearing on behalf of the Department of Justice (a) to forego use of these phrases when presenting forensic discipline testimony unless directly required by judicial authority as a condition of admissibility for the witness’ opinion or conclusion, and (b) to assert the legal position that such terminology is not required and is indeed misleading.
- **Recommendation #2:** **The Attorney General should direct all forensic science service providers and forensic science medical providers employed by Department of Justice [FBI, DEA, and ATF Laboratories] not to use such language in reports or couch their testimony in such terms unless directed to do so by judicial authority.**
- **Recommendation #3:** The Attorney General should, in collaboration with NIST, urge the OSACs to develop appropriate language that may be used by experts when reporting or testifying about results or findings based on observations of evidence and data derived from evidence.

Documents that will be discussed and voted on at the September 2016 NCFSS meeting

1. **Report and Case Record Contents** (views) [Reporting and Testimony]
2. **Documentation, Case Record and Report Contents** (recommendation) [Reporting and Testimony]
3. **Optimizing Human Performance in Crime Laboratories through Testing and Feedback** (views) [Human Factors]
4. **Proficiency Testing** (recommendation) [Accreditation and Proficiency Testing]
5. **Accreditation Program Requirements** (views) [Accreditation and Proficiency Testing]
6. **Accreditation and Recognition of Forensic Science Certification Bodies** (views) [Accreditation and Proficiency Testing]
7. **Certification of Forensic Science Practitioners** (views) [Accreditation and Proficiency Testing]
8. **Formation of a National Office for Medicolegal Death Investigation** (recommendation) [Medicolegal Death Investigation]
9. **Communication with Next of Kin and Other Family Members** (views) [Medicolegal Death Investigation]

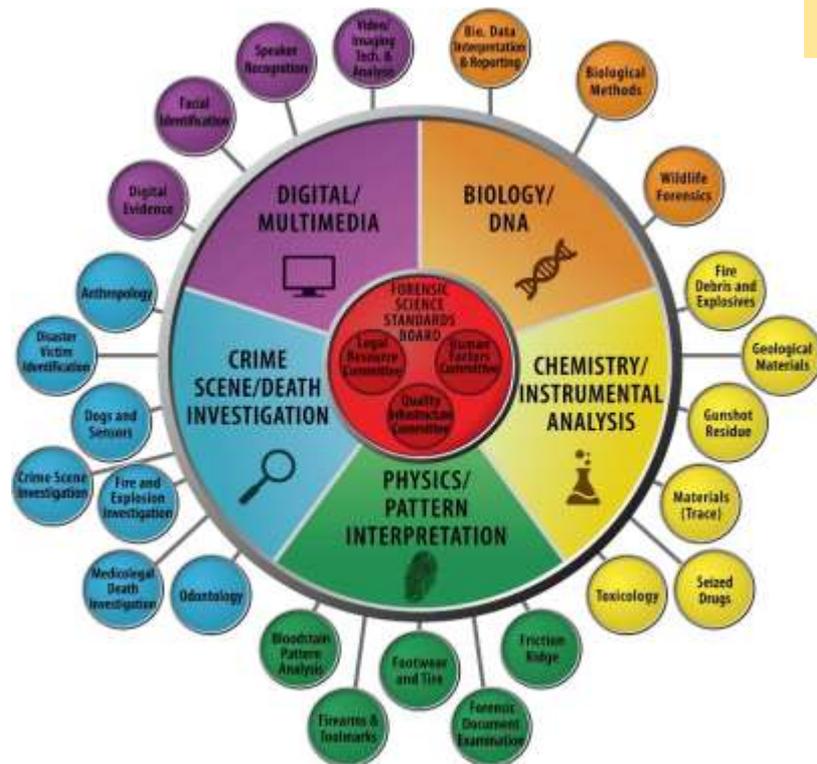
Public comment was open June 6 to July 5, 2016



>600 people involved in 34 operational units

<http://www.nist.gov/forensics/osac/index.cfm>

- Provides technical leadership to help develop and promulgate **consensus-based documentary standards and guidelines** for forensic science
- Promotes standards and guidelines that are **fit-for-purpose** and **based on sound scientific principles**
- Promotes the use of OSAC documents by accreditation and certification bodies
- Establishes and maintains working relationships with similar organizations



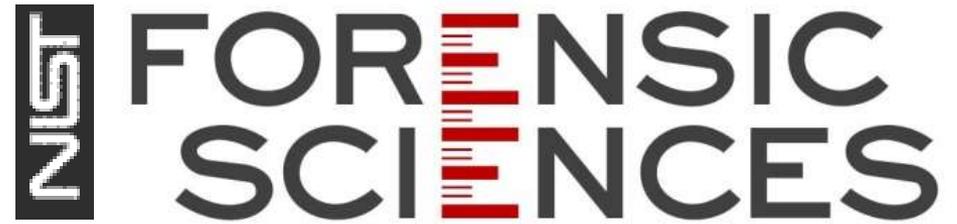
The Goal of Producing Documentary Standards in Forensic Science is Not New

Ideals for firearm identification

There should be adopted:

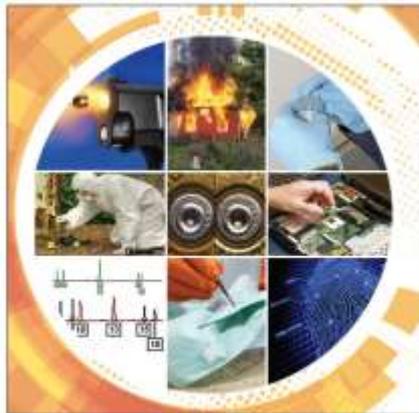
1. **Minimum standards of equipment** to be used.
2. **Standards for records of evidence** to accompany and substantiate the expert's opinion; these to include photographs, metrological data and interpretations in permanent form.
3. **Standards for qualification of experts** which will include actual tests made against secretly designated materials and reported in compliance with item 2.
4. Methods for... **following up [with] experts testifying in court** to guarantee the highest efficiency.

Wilmer Souder, *Army and Navy Journal*, March 19, 1932



NIST research programs in forensic science are supported by Congressional appropriations and other agency funding (including FBI, DHS, and DoD)

A Biannual Conference to Showcase NIST Research



FORENSICS @ NIST

November 8-9, 2016
Gaithersburg, MD

SIX CURRENT FUNDED FOCUS AREAS

- 1. Ballistics and Associated Tool Marks***
- 2. Digital and Identification Forensics***
- 3. Forensic Genetics (DNA)***
- 4. Toxins***
- 5. Trace***
- 6. Statistics***

A Forensic Science Center of Excellence was announced in May 2015 to supplement internal NIST research

<http://www.nist.gov/forensics/forensics-at-nist-2016.cfm>

Forensic Conference Organized by NIST

FORENSIC SCIENCE
ERROR MANAGEMENT

INTERNATIONAL
FORENSICS SYMPOSIUM

JULY 20-24, 2015 • WASHINGTON, DC



Planning has started for a second Symposium

Date: July 24-28, 2017

Location: Gaithersburg, MD

Sponsors that have been approached

DoD, FBI, NIST

http://www.nist.gov/director/international_forensics_home.cfm



September 2015 issue

Forensic Science International: Genetics

journal homepage: www.elsevier.com/locate/fsig



U.S. initiatives to strengthen forensic science & international standards in forensic DNA

John M. Butler*

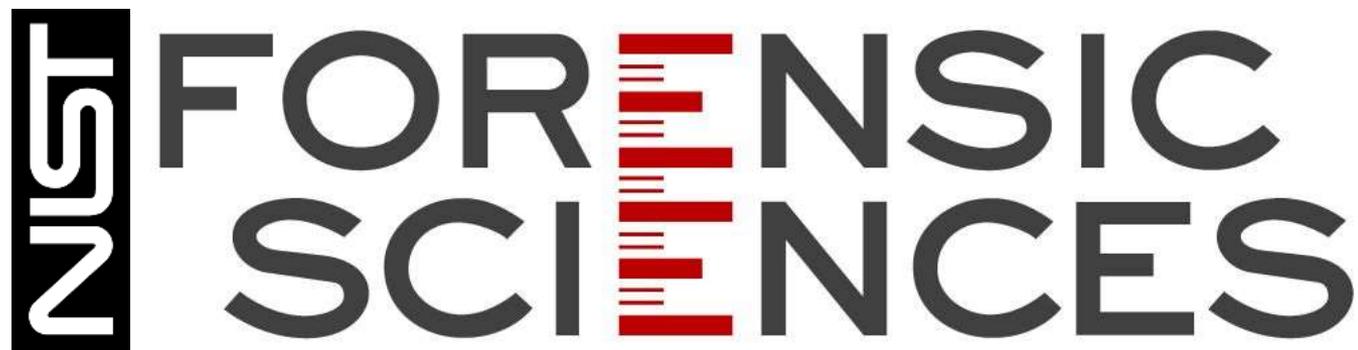
National Institute of Standards and Technology, Gaithersburg, MD, USA

OPEN SOURCE
(freely available)

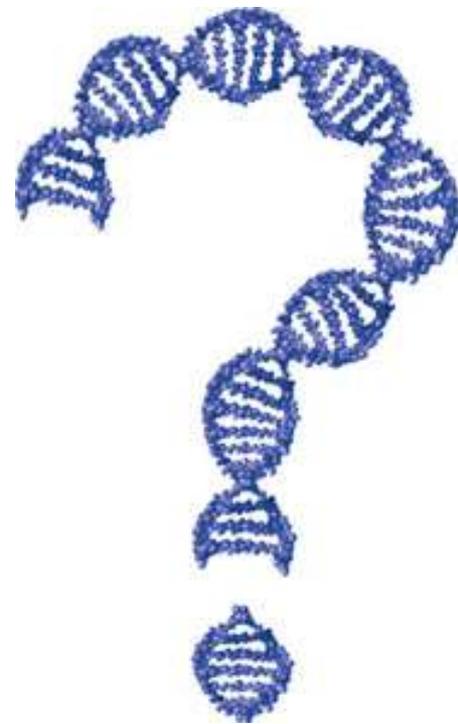
- This review article covers recent U.S. activities to strengthen forensic science including the formation of the National Commission on Forensic Science and the Organization of Scientific Area Committees
- DNA documentary standards and guidelines from organizations around the world are also included

National Commission on Forensic Science (NCFS):
www.justice.gov/ncfs

Organization of Scientific Area Committees (OSAC):
www.nist.gov/forensics/osac/index.cfm



www.nist.gov/forensics



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